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ABSTRACT

This compendium contains descriptions of 25 Elementary and Secondary Education Act Title I projects involved with mathematics, chosen as representative of the 367 mathematics education projects funded for approximately 9.2 million dollars during fiscal years 1966-68. Variables considered to be criteria for representativeness include: instructional area--curriculum development, grouping, inservice training, reduction of class size, small group instruction, teacher aides; level--elementary, secondary; time of activity--after school, during school, summer session; and, participation--public, non-public. Among these 25 are 8 previously described, included after having been augmented by the addition of the narrative evaluation sections obtained from the annual evaluation reports submitted to the State Education Department in accordance with current regulations regarding E.S.E.A. Title I. For Volume I of program descriptions, see ED 017 459. (JM)

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ELEMENTARY AND SECONDARY EDUCATION ACT, 1965 TITLE 1

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Mathematics Education Programs

VOLUME 2

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The University of the State of New York/THE STATE EDUCATION DEPARTMENT
Office of the Coordinator - Title I ESEA
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MATHEMATICS EDUCATION PROGRAMS

FUNDED UNDER

TITLE I

ELEMENTARY AND SECONDARY EDUCATION ACT OF

1965

VOLUME II

The University of the State of New York / The State Education Department /
Office of the Coordinator, Title I, ESEA, Albany, New York 12224

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FOREWORD

This compendium is the second publication describing Title I, ESEA mathematics education projects. The Bureau of Mathematics Education, under the direction of Frank Hawthorne, Chief, in cooperation with Dr. Irving Ratchick, Coordinator of Title I, ESEA, has compiled program descriptions for 25 Title I, ESEA projects involved with mathematics education.

The projects selected give a range of coverage in different instructional and service domains, including curriculum development, inservice training, and small group instruction. Included, are 8 Title I, ESEA mathematics education projects described previously in 25 Mathematics Education Programs, State Education Department, Albany, New York, November 1967.

These 8 projects were selected because of the diversity of their instructional areas. The program descriptions of these projects have been enriched by the addition of the narrative evaluation sections obtained from the annual evaluation reports submitted to the State Education Department in accordance with current regulations regarding P.L. 89-10.

In the past 3 fiscal years, 1966-68, 367 mathematics education projects have been funded for approximately $9.2 million. Melvin Mendelsohn, Associate in Mathematics Education, has the responsibility for evaluating Title I, ESEA projects in mathematics education submitted to the State Education Department for funding, and has selected, edited, and prepared for publication, the 25 project descriptions.

Walter Crewson

WALTER CREWSON
Associate Commissioner for Elementary,
Secondary and Continuing Education

PROJECT MATRIX

	INSTRUCTIONAL AREA						LEVEL		TIME OF ACTIVITY			PARTICIPATION	
	Curriculum Development	Grouping	Inservice Training	Reduction of Class Size	Small Group Instruction	Teacher Aides	Elementary	Secondary	After School	During School	Summer Session	Public	Non-public
Buffalo					x		x		x	x		x	x
Ellenville		x	x				x	x		x	x	x	
Lancaster					x		x				x	x	x
Lawrence		x		x			x			x		x	x
Levittown		x		x			x			x		x	x
New York					x		x		x		x	x	x
New York (CDD)				x	x		x	x		x			x
Plainview				x		x		x		x		x	
				x	x			x		x		x	x
Brewster				x			x	x	x		x	x	x
Corning				x	x		x			x		x	x
Cortland	x				x	x	x				x	x	
Fort Plain				x			x	x		x	x	x	
Gilboa	x				x		x	x		x	x	x	
Greene					x	x	x			x		x	
Hinsdale					x	x	x			x		x	
Irondequoit					x		x			x	x	x	x
Mount Kisco					x		x	x	x		x	x	
North Babylon					x		x		x			x	
North Colonie					x	x	x	x	x	x		x	x
Owego					x	x	x			x	x	x	
Sandy Creek	x		x		x		x	x			x	x	
Sewanhaka				x	x			x	x	x	x	x	
Sherrill					x		x			x		x	
Wappingers Falls	x							x			x	x	
West Islip					x		x				x	x	

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1. BUFFALO

PLUS Program; 4,650 Disadvantaged Children

Nature of Project: The PLUS Program provides compensatory education for educationally deprived children in the target areas of Buffalo.

The intent of the program is to provide the additional staff necessary to insure that each elementary school child in the public and private schools of the target area receives maximum exposure to remedial work in reading and in mathematics. The additional staff permits small groups and individuals to work closely with a skilled teacher in specific areas of difficulty, thereby overcoming learning problems.

Remedial teachers in mathematics work with classroom teachers to help them identify those children who need assistance. These teachers then provide intensive tutoring. By providing this special tutorial assistance, it is possible for the regular classroom teachers to work more effectively with all pupils.

After-school remedial and enrichment programs supplement the day school program. Remedial efforts are continued as during regular hours.

The entire program as conceived allows the Buffalo School System to greatly enlarge existing remedial programs which were restricted in deprived areas because of financial limitations. It further allows greater access to the school's facilities during after-school hours and thereby expands the opportunities for remediation and enrichment in a good environment.

Procedure:

A. Program - Forty-three remedial arithmetic teachers, employing standard remedial material, teach children in public and parochial schools in groups of 6 for 6 or 7 periods per day. Each period is from 30 to 40 minutes in length.

Homogeneous grouping is used wherever possible to increase the efficiency of instruction. The arithmetic program is designed for grades 2 through 8 for children with potential who are retarded one or more years in arithmetic.

Children are selected by the principal with assistance from the classroom teacher. Achievement test and classroom teacher's estimate of arithmetic level are used as the basis for selection.

The total number of students participating in this phase of the program in fiscal year 1967 was 2,210; 1,576 public school students and 634 parochial school students. The number of students per grade level was as follows:

Grade	No. of Students
1	38
2	334
3	445
4	544
5	411
6	329
7	78
8	31

After school, for 5 months, 3 days a week, 138 remedial teachers instructed children in arithmetic. The staff were regularly employed teachers working in the schools having the afterschool program.

Small group and individual instruction enabled teachers to better diagnose needs and to concentrate upon development of required skills in reading and arithmetic. Groups consisted of 6 children who took one remedial and one enrichment subject for one 45-minute period each week - 3 afternoons a week. Audiovisual materials were widely used. Children were able to work at the board more frequently than in day class. Workbooks were provided for children to use in school and have for their own.

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The total number of students participating in this phase of the program was 2,440; 1,764 public school students and 676 parochial school students. Grades 4 through 8 were included in this phase.

B. Evaluation -

During School: The California Arithmetic Test, Forms W and X, Lower Primary, Upper Primary, and Elementary were used to determine gains.

The following data has been compiled in evaluating pupil achievement:

Students	Initial Tests - Form W Final Tests - Form X	
Total number of children tested - initial		1,901
Total number of children tested - final		1,774
Total number of children tested - initial & final		1,663
Median Score Gain		7.000 mos.
Mean Score Gain		7.3 mos.

After School: California Arithmetic Test, Los Angeles, California Test Bureau; Forms W and X, Primary Grades, Elementary Grades.

	Arithmetic
Number of Teachers	138
Total number of children tested - initial	1215
Total number of children tested - final	1285
Total number of children tested - initial & final	944
Median Gain	5 mos.
Mean Gain	6 mos.

Budget: $2,284,000; mathematics allocation - $655,000

2. ELLENVILLE (Wawarsing 2)

Blast Off; 161 Disadvantaged Children

Nature of Project: During April, May, and June of the academic year a testing program in mathematics is conducted. Each child in grades 1-8, inclusive, is tested. Children who test one or more years below their grade placement are identified as educationally deprived in the area of mathematics. On the basis of the cumulative test record in mathematics, students are grouped for instruction.

An inservice course in teaching mathematics to educationally deprived children is conducted during the academic year. This course helps teachers direct their attention and interest toward the problem of the educationally disadvantaged.

The educationally deprived students needing further help after the academic year, are able to attend summer mathematics instruction.

Procedure:

A. Program - The Stanford Achievement Test in mathematics is the standardized test utilized in the testing program. A special group of students who were in grade 3 during the 1965-66 school year but were not promoted, were retained in grade 3 and placed in one group with a special teacher for remedial work. All students in grades 4-9 are grouped into three levels for instruction in mathematics. All students in grades 10 and 11 are grouped into two levels for instruction in mathematics.

All 50 teachers on the staff teaching mathematics K-12 are eligible to attend the inservice course which provides for 15 two-hour sessions. The 10 films and textbooks produced by the National Council of Teachers of Mathematics are used to acquaint the teachers with mathematics fundamentals. The instructor, films, and consultants, show the teachers how

this material can be taught to disadvantaged children. A professional library on mathematics and teaching the disadvantaged has been set up in conjunction with this inservice course and all teachers are encouraged to utilize the professional books from it. The professional library is maintained as a separate section of the elementary school library.

This project continues the summer mathematics program of 1966 with the following modifications:

1. Instead of 4 classes of 20-25 students, there were 6 classes of 15-20 students in the summer of 1967. The experience in the summer of 1966 showed that 20-25 educationally deprived students in one class becomes too much for one teacher.

2. Summer school started July 5, 1967, and ended August 11, 1967.

3. The Supervisor of Mathematics, during the last half of August, reassigns the student body (grades 1-12) as outlined in the first paragraph. In addition, the annual test results are evaluated and prepared for placing in the hands of each child's teacher at the opening in September, with a program of planned remedial work for the children. Teachers are informed of test results for their groups and individuals in their group. This helps to make teachers aware of areas of strength and weakness, and gives them guidance in future studies and efforts.

B. Evaluation -

Summer 1966:

1. Two hundred and twenty students requested admission to this summer remedial program in mathematics. Since the project was approved for only 100 children, the 100 children showing the most need were selected from the 220 applicants.

2. The summer remedial program in mathematics commenced on July 11, 1966, with 100 children enrolled as scheduled.

3. There were only 4 dropouts and the program ended on August 19, 1966, as scheduled with 96 children completing the program.

4. The Stanford Achievement Test in Arithmetic, Form W, was used as a pretest for this summer project and Form X as a posttest. A summary of these test results follows:

	Scores Are in Grade Placement		
	Computations	Concepts	Problems
Gain during summer project of 6 weeks duration	8 mos.	3 mos.	6 mos.

Summer 1967:

1. One hundred and sixty one students completed the full 6 weeks summer mathematics program from July 5, 1967, to August 11, 1967. Distribution of the 161 students by grade level is as follows:

Grade 1	28 students
Grade 2	17 students
Grade 3	22 students
Grade 4	13 students
Grade 5	14 students
Grade 6	15 students
Grade 7	28 students
Grade 8	24 students
TOTAL	161 students

In addition to the above 161 students, 10 students completed 5 weeks of the program. They dropped out the last week as their parents took them away on vacation trips.

2. Different forms of the Stanford Achievement Test in Arithmetic were used as pretests and posttests for students in grades 2-8 of this summer program. The California Arithmetic Test was used for children in grade 1. A summary of test results for these 161 students follows:

	Scores Are in Grade Placement	
	Computations	Reasoning & Problem Solving
Gains during 6 weeks of summer mathematics school	1 yr.	5 mos.

3. The summer program centered on work with the Cuisenaire Rods for children in grades 1 to 6. The work with grades 7 and 8 students centered on the Computational Skills Kit produced by Science Research Associates, Inc. Children in all grades worked with the Cross N umber Problem Kits and Equation Games produced by SRA. In general the children seemed to enjoy learning mathematics with these materials. The teachers used the materials and class time skillfully. There seemed to be a relaxed learning atmosphere in the classrooms with all children making some effort toward improvement. Student absenteeism was very low.

4. The Project Director feels that this summer program was very successful, far exceeding last summer's results which were also very high. The outstanding summer results were to a large extent the culumination of the efforts made under project "Blast Off" during the academic year. Particularly helpful was the academic year inservice course for teachers on teaching mathematics to disadvantaged children.

Budget: $11,900

3. LANCASTER

Elementary Summer Program; 150 Disadvantaged Children

Nature of Project: The project is designed specifically to overcome educational disadvantagement in arithmetic performance. It is a program within a program. Title I students attend the same school and participate in the regular summer elementary program. The program stresses a mathematics-science unit teaching approach with a variety of outdoor activities.

Procedure:

A. Program - The program includes 70 students from private and public schools in grades 3 and 6, and 80 students in first grade. Selection of students (grades 3-6) is based on scores of the Arithmetic Tests for New York State Elementary Schools. Students whose scores fall in the lowest 3 stanine areas for the district are identified as educationally disadvantaged in arithmetic. First grade teachers are asked to rate students "A" to "F" on overall arithmetic performance. Students falling in the "D" and "F" categories are identified as educationally disadvantaged.

Two groups are randomly selected from the educationally disadvantaged population. A control group of 75 students participate in the regular program and have experiences with large and small group instruction, as teachers cooperatively plan activities. As teachers identify specific needs of students in arithmetic, learning activities are designed to provide remediation and reinforcement.

The experimental group is composed of 75 students. An item analysis is made of the pretest to identify specific deficiencies. The children then are divided into groups of 4 (one group of 3) and one teacher assigned to each small group. They receive specific help in arithmetic for two 20-minute periods per day, in addition to participating in the regular summer program.

B. Evaluation - Hawthorne Effect: because of the nature of the entire program in which all students participate in an outdoor camp atmosphere, it is assumed that any influence of the "Hawthorne" effect will tend to be equalized for all participants.

Two groups randomly selected from the educationally disadvantaged population were given the Stanford Achievement Test, Form W, in June 1967. At the end of the summer session Form Y of the Stanford Achievement Test was given and pretest and posttest results were compared to ascertain if any significant differences in test results existed between the control and experimental groups.

STATISTICAL ANALYSIS

Student cards include data on individual students in matched pairs: The data includes:

1. Student code number
2. Student name
3. Sex
4. School code number (Public and Private)
5. Grade level
6. Arithmetic subtest scores of the SAT for both pretest and posttest batteries

Data from the individual student cards was put into the computer and 2 tests were performed; (A) test of group variance and (B) test for regression lines. Test A (test of group variances) showed no differences. Test B indicated regression lines were parallel. Therefore, on the basis of these 2 tests an analysis of covariance was indicated as a suitable statistic to analyze the data for both grades 1 and 3.

Grade 1 - 19 matched pairs

Grade 3 - 18 matched pairs

FINDINGS: Grade 1

1. No difference between groups on posttest scores

   No difference between groups on pretest scores

2. Still no difference after equating students on pretest scores

3. Comparing group means

   Experimental group made slight gains

   Control group lost ground

   However, difference not significant

4. Adjusted criterion: <u>means</u>

Experimental	37	difference not significant
Control	34	

FINDINGS: Grade 3

1. No difference between groups on posttest scores

   No difference between groups on pretest scores

2. Still no difference even after adjustment

3. Comparing group means

   Both groups lost ground

   Experimental group lost less ground than did control (experimental did not forget as much by being in summer school as did controls)

   Indicates summer program may have been effective in keeping students from the regression that normally occurs during the summer

4. Adjusted criterion: <u>means</u>

Experimental	61	difference significant at .05 level
Control	54	

There were not enough pairs of sixth graders at end of summer (illness and vacations caused sharp drop in final 3 days of program) to use statistical analysis.

FOLLOWUP STUDY

The followup to the Lancaster Elementary Summer Program was initiated with the selection of 40 students from both control and experimental groups. Of these 40 students, 9 are attending private schools in grades 2, 4, and 7. All others are in the Lancaster Central School system - grades 2, 4, and 7. One child, a transfer from private school, is repeating sixth grade.

An evaluation device, subjective in nature, was given to the teachers of the above mentioned students the first week of October, to be completed by October 13th. It was explained to them that an evaluation at this date was for the purpose of recording the teacher's first impressions of these students regarding their attitude towards school and learning and also how the students rated, early in the year, in the math-science-communication skill areas. The main interest (for this report) is in the child's arithmetic ability in relation to his achievement.

In order to abstract information to form any conclusions regarding the followup study, the following variables must be kept in mind. First, and foremost, the followup is subjective. Teacher judgments are being rendered, which in itself constitutes many variables concerning pupil-teacher relationships. Second, generally most students are in different classrooms distributed throughout the six elementary schools of the Lancaster school system as well as the private schools within the district. The children consequently have different teachers than the preceding year. This is a factor that may increase or decrease their performance and improve or regress their attitude towards learning.

In light of this information some general judgments concerning the program can still be made.

Teacher judgments regarding the child's attitude towards school and learning, in all grades concerned, seemed to indicate what one would expect of children on each of these levels. The enthusiasm for school by a second and fourth grader is generally high, and occasionally, for various emotional and sociological reasons, you find a child who is adverse to the school setting. Seventh grade students tend to have less interest in school than in earlier years which is, generally speaking, a result of the physical changes taking place at this age level. Keeping this in mind the responses were analyzed. Teachers in second grade indicated that 3 (3 out of 16; 19 percent) children seemed to have a poor attitude and in grade 4 there was one (1 out of 14; 7 percent) child so judged. Seventh grade, where one would expect a higher number showed 3 (3 out of 9; 33 percent) students with an attitude detrimental to learning.

The student-rating sheets also requested the teachers to indicate at what point of achievement they judged these children to be in arithmetic, in relation to that grade level. The rating sheet had a 5 point scale: excellent, good, fair, poor, cannot judge. In grade 2, 12 out of 16, or 75 percent were rated as performing from fair to excellent and the remaining 4 students (4 of 16; 25 percent) were said to be poor. Grade 4 teachers indicated 9 students (9 of 14; 64 percent) rated from fair to excellent and 5 (5 of 14; 35 percent) were considered poor. In the seventh grade, of the 9 students being evaluated 6 were rated from fair to good (6 out of 9; 662/3 percent) and 3 (3 out of 9; 33 percent) were indicated to be doing poor work.

Upon the completion of the 10 week grades the teachers were requested

to submit the arithmetic marks they gave to the students concerned in this followup. These grades were then compared with the arithmetic rating given each student in June previous to the summer program. In grade 2, 10 of 16 students were rated higher than they previously had been; 3 students were rated the same; 2 students were rated lower than previous, and one student has been dropped from the followup as he was put into a special class for the retarded. There were 7 students in grade 4 who received a higher rating; 5 students rated the same, and 2 students were marked lower. In seventh grade, 4 students were given higher ratings than they had received before (last June); 4 students were rated the same, and one student was marked lower.

The one student who is repeating sixth grade was said to have a good attitude towards school and learning. The arithmetic rating she received was higher which was reflected in her scores on the New York State Arithmetic Survey Test given in October. She scored at the 65 percentile on this test.

Even though the evaluation is subjective and is based on teacher judgments, one must keep in mind that one of the criteria for selection into this program was teacher judgment. This thereby lends some credence to the consistency of the evaluation. The evaluation has indicated that 81 percent of grade 2 students, 93 percent of grade 4 students and 67 percent of grade 7 students being studied have a favorable attitude towards school and learning and that 75 percent of grade 2 students, 64 percent of grade 4 students, and 66 2/3 percent of grade 7 students in the followup have shown improvement in the area of arithmetic.

Budget: $9,000; mathematics allocation - $2,250

4. LAWRENCE (Hempstead 15)

Improving the Remedial Programs for Educationally Disadvantaged Students; 292 Disadvantaged Children

Nature of Project: The utilization of remedial arithmetic teachers in the elementary schools to help those children who are considerably below grade level in arithmetic skills.

Prior to the implementation of the project during the school year 1965-66, remedial help in arithmetic was not available in any of the Lawrence public schools. The results of standardized test, as well as the judgement of teachers, administrators, etc., indicated a need for such help for those children whose achievement was considerably below grade level. In an attempt to help teachers in grades 4, 5, and 6 meet the needs and abilities of the children in arithmetic, remedial arithmetic teachers are utilized in an other than customary classroom structure.

Procedure:

A. Program - An experiment has been carried out in one of the elementary schools during the past 5 years. Last year it was extended to the other schools in the district.

Under this plan, the children of a particular grade level leave their regular classrooms for 40 minutes each day and are regrouped according to arithmetic ability. Therefore, the children on that grade level most deficient in arithmetic skills are in one class. In this class the teacher can give her full attention to meeting the needs of the disadvantaged learners, a condition not possible in a heterogeneous group. The experience with the experimental program indicated that under this group procedure, the disadvantaged children made greater gains in arithmetic than did similar children taught arithmetic in the heterogeneously grouped self-contained classroom.

One problem arose. The overcrowding in most of the schools made the slower arithmetic classes rather large. This, combined with the wide range of achievement levels in slow classes, made it difficult for the teacher of the slow group to work effectively. This was solved through utilization of remedial arithmetic teachers provided by this project. The low ability class is split in two; half being taken for the 40 minute period by the regularly assigned teacher, and the other half of the class being taken by the remedial arithmetic teacher. This enables the pupils most in need of arithmetic help to work in a class with low pupil-teacher ratio.

Because of the nature of the program, a remedial arithmetic teacher is needed in each of the elementary schools for one-half day to work with the intermediate grade children deficient in arithmetic skills. In addition, in those schools having the largest number of children scoring below the 30th percentile on the Arithmetic Tests for New York State Elementary Schools, the remedial arithmetic teacher is assigned an additional half day to work with the children in the primary grades needing special help, and with those children in the intermediate grades who might need help in addition to that provided during the arithmetic period. Two teachers are assigned to take care of the need for remedial arithmetic instruction in the private and parochial schools.

B. Evaluation - Each child in the program takes the Iowa Tests of Basic Skills at the beginning of the year to determine his arithmetic level. At the completion of the program, an alternate form of the test is administered to help determine any gains made. Diagnostic tests are also administered to help teachers determine the weaknesses of the various pupils so that the program may be structured accordingly.

The remedial arithmetic program was conducted in 5 of District 15's elementary public schools as well as in the 5 nonpublic elementary schools within the community. A total of 292 children, whose ages ranged from 8 to 13 years, in grades 3 to 8, participated in the program.

Using the scores on the Iowa Tests of Basic Skills Test, a comparison was made using T - Test Analysis of the difference in growth rate before and after remedial instruction.

Summary of Statistical Data
(Based upon scores of Iowa Tests of Basic Skills)

Grade	No. of Pupils	T-Score for Matched Groups
3	53	2.35[1]
4	56	1.69
5	56	2.14[1]
6	35	1.38
7	8	.22

[1]Significant at the .05 level of confidence

REACTIONS:

On the basis of a survey, conferences and informal meetings, the following reactions were given by teachers and administrators, regarding the effectiveness of the program.

1. It was generally agreed that a noticeable improvement in performance was made by most of the pupils in the remedial classes.

2. The teachers agreed that they were able to care for individual needs better than ordinarily would have been possible in a heterogeneous group. In addition, it was generally agreed by the teachers not in the program that the removal of the slower children from the regular classes, facilitated the meeting of the needs of the others.

3. The teachers observed an improvement in the attendance record of many of the children in the program.

4. Many of the teachers and administrators reported that the project children (who in the past were becoming conditioned to failure) were for the first time gaining successful experiences. It was further agreed that their success seemed to heighten their interest in school work.

5. Reports of gains in self confidence were made by parents, in describing their child's reaction to the program, at conferences with teachers.

The statistical evidence indicates that the increase in achievement in grades 3 through 7 was significant for some levels and not significant for others. Excluding the seventh grade data, (which is based on an extremely small sampling) the summary table shows that 50 percent of the results were significant.

It should be noted that in those grades for which significant values were obtained the number of students tested on each level, was relatively high. Although the value obtained for the fourth grade is not significant at the .05 level of confidence, it is noteworthy that it is almost a significant value.

Budget: $84,100

5. LEVITTOWN (Hempstead 5)

Center for Learning Development; 425 Disadvantaged Children

Nature of Project: The Center is established to diagnose specific learning difficulties, to provide preventive and remedial instruction, and to explore causes of learning difficulties and possible new avenues of learning development. Presently the center carries on diagnostic procedures as well as remedial instruction in mathematics and certain areas of the language arts. Referrals are accepted of public and nonpublic school pupils who reside in the school district. A rented facility is utilized. It was remodeled to suit the needs of a central location. The site houses the central staff of the center, and has 10 classrooms.

Procedure:

A. Program - Pupils are grouped for a course of instruction in accordance with the diagnostic information forwarded by their schools, together with the results of diagnostic tests administered at the Center. A typical class group consists of 4 to 8 students of similar age, grade, intellectual capability, and type of difficulty identified by the completed diagnosis. The mathematics diagnostician tests students to determine learning disabilities in the areas of mathematics by subjective and objective means; groups and schedules students for instruction in accordance with needs; recommends the purchase of materials; holds conferences with parents, staff, and school personnel to discuss findings.

Each student referred to the Center receives a 15 hour course of instruction based upon the results of the diagnostic testing. Two 15 hour courses are in operation; one during the fall semester, and one during the spring semester. Classes are in operation after school hours and during the summer months.

Some features common to all instruction at the Center for Learning Development are:

1. The use by the instructor of diagnostic test results is to organize an appropriate and flexible sequence of instruction for each student.

2. The instructor's continuous narrative reporting of significant activity and behavior of each student provides the basis for his estimate of student progress at the end of the period of instruction and his recommendations for followthrough measures to be taken by the school, the parents, and the classroom teachers.

3. Instruction emphasizes logical thinking and expression, techniques of exploration, problem solving, and the application of study techniques rather than the memorization of subject matter as prescribed activity.

4. The use and evaluation of teacher and student devised learning materials and exercises and new materials being introduced by suppliers of school texts and teaching aids.

The Mathematics program stresses student insight into number operations and relationships as the basis for the effective statement of a problem and its method and sequence of solution. The mathematics instructors are helping to establish an informal test of mathematics concepts for possible district wide use. Students are taught to operate calculators for mechanical computation of problems they are directed to structure and solve. A variety of motivating games and devices such as the abacus are in the mathematics program.

Student seats at the Center are allotted to the respective public and nonpublic schools in proportion to the school's student registration. One out of every 5 students attending the Center is referred from a nonpublic school. There is a total program enrollment of 300 students per session.

B. Evaluation - The Metropolitan Achievement Tests and informal mathematics inventories are administered during a testing session prior to the beginning of the session. At the end of each period of instruction, an evaluation of each child's progress is made, using alternate forms of the Metropolitan Achievement Tests to measure growth.

Many children progressed as much as one year in terms of instructional levels after one semester of training; attitude changes were reflected by greater accomplighment in their regular school classes.

Diagnostic procedures gave evidence of learning disabilities in such areas as sensory motor skills involved in learning to read, spell, write and figure, judgment, reasoning and generalizations.

The modern environment creates an atmosphere for learning. Participation of students is enthusiastic; they attend classes willingly and rarely are absent though they are responsible for their own transportation; more meaningful relationships occur between child, teacher and parent.

Center sessions differ from school classroom instruction in being preceded by more careful diagnosis and by more carefully planned motivation and recognition of success. Instruction is carefully paced to the individual child's rate of learning. Progress is checked regularly to determine the growth being achieved and to plan future procedures. New, interesting materials in the Center, away from the "school again" atmosphere in its negative context make for a fresh approach to learning.

The idea of use of preventive techniques as a measure to eliminate the need for remedial instruction has affected the educational procedures in the schools. School staffs have become better informed on diagnostic procedures and the meaning of instructional levels and the uses of materials.

Budget: $110,000; mathematics allocation - $33,000

6. NEW YORK CITY

Corrective Mathematics Services for Disadvantaged Pupils
in Nonpublic Regular Day Schools;
8,625 Disadvantaged Children

Nature of Project: The Corrective Mathematics Services Program is designed to provide remedial mathematics instruction for disadvantaged pupils in the nonpublic schools. The schools included in this project serve attendance areas having high concentrations of low income families. Each school enrolls many disadvantaged children who require specialized educational services.

The corrective mathematics teachers instruct small groups in separate rooms in order to meet the individual needs of the pupils. Regular classroom teachers consult the special teachers to improve the instructional program. Diagnostic testing is included as part of the instructional program by the assigned teachers.

Procedure:

A. Program - In grades 2 through 4, children are selected for the program on the basis of at least one year's retardation in mathematics; in grades 5 through 8 the basis is at least 2 year's retardation. As a pupil achieves grade level he leaves the program and is replaced by another child who is retarded in mathematics.

Teachers are trained to use a developmental mathematics approach which, while stressing basic facts, computational skills, and problem solving, enables the children to "discover" relationships and form generalizations.

The pupil-teacher ratio for this program is 230 to 1, i.e., 1 corrective mathematics teaching position is provided for every 230 nonpublic school children who are eligible for corrective mathematics services.

The nonpublic schools participating in the program are selected on the basis of the needs of the pupils for corrective mathematics services. The number of teaching positions are determined according to the teacher-pupil ratio of 230 to 1.

The 230 children in the teacher-pupil ratio of 230 to 1, for the most part, are not in one school. The corrective mathematics teacher travels from school to school to serve the needs of the children.

In correcting the mathematics deficiencies of the children involved, each teaching position serves approximately 100 pupils per week. In the basic program the teacher instructs the pupils in groups of approximately 10, for 2 one hour sessions a week. Since the teacher uses 20 hours per week for instruction, 100 children are served.

Eligible children not being served by the corrective mathematics teacher at the outset of the program are placed on an eligible list. As pupils have their mathematics deficiencies remedied, they are replaced by eligible children from the waiting list.

The program supplies and materials include duplicating stencils, diagnostic tests, workbooks, practice materials, tens frames, squared materials, and fractional parts.

B. Evaluation - The program began in 135 schools in September 1966, with 66 teachers and 3 part-time supervisors. More schools were added to the program as more teachers were obtained; by June, 154 of the schools were being served. A total of 8,625 children were served this year.

The primary aim of the evaluation was to determine the extent to which the corrective mathematics program contributed to overcoming the retardation of the children enrolled. The effects of the program on the self-image, attitude toward school and education, and attendance of the

pupils were also studied. In addition, the effectiveness of the program, as estimated by the participating teachers and principals of the schools, was evaluated.

A questionnaire was sent to the principals of all 154 participating schools. Information concerning selection procedures, teaching techniques, supervision, etc. was collected and analyzed from the 126 respondents. From the corrective teachers information was obtained about their background and training, their experiences and reactions to the program.

A pupil self-rating scale was administered in May to the sample groups described below. In addition, these same children were rated by their regular classroom teachers. Beginning and end year attendance was reported for these pupils.

Specialists in mathematics education visited 15 sample schools, observed the corrective classes and interviewed school principals, corrective mathematics teachers and groups of children.

Originally, the arithmetic performance of third, fifth, sixth and seventh grade children in corrective instruction was to be compared with that of a group of children eligible for, but not enrolled in corrective instruction. This comparison group was selected on the basis of the results of the November 1966 administration of the Metropolitan Achievement Test in Arithmetic. However, the groups could not be considered equated; there is evidence from both teachers and principals to indicate that the instruction children, selected on the basis of teacher judgment, were experiencing difficulties in the classroom in addition to retardation in arithmetic. Because of this factor, comparative data should be interpreted cautiously.

In order to measure the amount of change in arithmetic performance, the Metropolitan Achievement Test was readministered in May 1967 to all children in the corrective program at that time.

FINDINGS

The third graders in instruction gained 6.2 months in computation and 5.5 months in problem-solving during the 6 month period between the November and May test administrations. Fifth and sixth graders made small gains (2.0 and 1.0 month respectively) while the sampled seventh graders in instruction did not improve on the arithmetic computation subtest. In the problem-solving subtest the sixth grade sample averaged a 5.0 month gain; pupils in grades 5 and 7 tested more poorly in May than they had in September.

The apparent increase in retardation in the older grade group has been attributed to (1) the inappropriateness of the MAT, (2) the inexperience of the corrective teachers in working with the more "sophisticated" arithmetic topics, and/or (3) relatively more severe retardation in the older grade groups.

The comparison group made greater gains than the comparable children in instruction, perhaps because they did not suffer from any of the difficulties other than retardation in arithmetic; or perhaps because when the program children were sent out for corrective instruction the comparison child remaining in the regular classroom had a greater opportunity to learn.

Teacher ratings of the pupils in instruction indicated an improvement in classroom performance. Almost 90 percent of the pupils were rated as at least "somewhat helped." More than 90 percent of the pupils, according to teachers, looked forward to attending corrective classes.

When compared with the children not in instruction a larger percentage of the program children rated themselves as "liking arithmetic" and "liking school." Third graders in instruction tended to rate themselves better than pupils in the other grades.

Children in instruction exhibited improved attendance from the beginning to the end of the school year, while in general, the attendance of comparison group children tended to become poorer.

Principals of the nonpublic schools were generally pleased with the program; the main source of dissatisfaction was with the inexperience of the corrective teachers. Sixty-eight percent of the teachers had never taught before and 60 percent had never taken a methods course in the teaching of mathematics. Their difficulty was magnified because the program materials did not reach the schools until 6 months after the start of the program, and because there was a shortage of supervisors and a resultant lack of regular and frequent supervision.

The principals felt that the children in the program gained in knowledge of fundamental skills in mathematics as well as improved in their attitudes toward school as a result of the small-group corrective instruction in mathematics.

Preliminary interviews and observations indicate that the 1967-68 program is functioning well. It appears that workshops have been effective and have helped the teachers greatly. The evaluators have observed "good, dedicated mathematics teachers." Some of the intangibles of pupil progress are unfortunately difficult to measure. Both project teachers and regular classroom teachers believe that the students are interested in and are benefiting from the program, although it is impossible at this time to estimate how much. According to interviews with staff members, corrective

mathematics teachers, regular classroom teachers and principals, it can be unequivocally stated that there is great improvement over last year's program. The teachers are better trained and the materials have arrived in greater quantities and are being used rather effectively.

Budget: $724,000

7. NEW YORK CITY

The College Discovery and Development Program;
1,158 Disadvantaged Children

Nature of Project: The program was initiated in September 1965. It aims to discover and develop those educationally disadvantaged pupils with potential and prepare them for admission to college. The project takes 9th grade students whose records of achievement fail to reflect their actual potentials, and through a program involving intensive guidance and instruction in small classes, it is hoped that students will be prepared for admission to college. Students who successfully complete the high school program are guaranteed admission to one of the units of the City University.

Brief Historical Summary

A Steering Committee to make plans for College Discovery started work in February 1964. The fundamental aim was to increase the number of students from disadvantaged backgrounds who would be able to enter CUNY and successfully complete a program leading to a bachelor's degree. Two "prongs" were planned. Prong I was to be a special freshman year program, starting with an intensive summer session, located within the transfer program of the University's community colleges. Admission was to be for high school graduates who fail to achieve minimum entrance standards of the transfer program. Prong II was to be a special 3 year senior high school program for disadvantaged students with mediocre records through the ninth grade.

Major attention in early meetings was given to reaching agreement on the main objective: completion of a college program leading to a bachelor's degree from CUNY by students who were initially unable to meet college

entrance requirements because of the effects of cultural disadvantage. The number of students to be admitted to Prong I, the formulation of a selection process, and planning for the freshman year also received priority consideration. Action had to be delayed until word of favorable budgetary action by the State Legislature was received early in May 1964. Of the money available, a small amount was allocated to the Division of Teacher Education for planning Prong II during 1964-65.

For Prong II, renamed College Discovery and Development (CDD), the fall 1964 semester was one of busy planning. The Planning Committee included 4 members of the research office staff, 4 college consultants, 3 representatives of the high school division, and 1 representative from each of the 5 high schools that had been chosen, with the consent of the principals. (Jamaica, Port Richmond, Seward Park, Theodore Roosevelt, Thomas Jefferson)

The Planning Committee completed a report containing recommendations to the Steering Committee by February 1, which subsequently approved it without major changes. This report proposed substantial staff allocations from both the Board of Education and CUNY. With the approval of the Steering Committee the program was announced and the process of selecting candidates began. By June 1965, funding had been secured for both the school and university operations, the student population had been selected, college consultants invited, and the project was under way.

Funding arrangements for the CDD Program are complex. Support for specific program aspects is provided through: Title I, ESEA, the College Work Study Program, HEW; the Community Action Programs and the Upward Bound Program, OEO; a state grant to the City University of New York; and and by funds of the boards of education and higher education of the City of New York.

Procedure:

A. Program - The program now includes 5 High School Development Centers. They are in selected schools in attendance areas having a high concentration of low income families. The schools are coeducational with mixed ethnic groups.

The selection process had stressed economic and social disadvantage, evidence of potential higher than previous achievement, and previous achievement below transfer program minimum grade average. There were, however, considerable variations in racial composition and aptitudes among the 5 centers.

Each student was given a "scholarship" of $5 a week, to cover expenses of going to school and participating in the cultural program. Funds for this came from OEO through the local Community Actions Board.

The program provides for intensive instruction in small classes; 20 students are the maximum in a class. A double period of instruction is given in mathematics. There is a tutorial period at the end of the school day for those who need it with a ratio of 4 students to 1 college tutor. About 300 CUNY students, most of whom qualified as disadvantaged according to OEO criteria, were employed as tutor-mentors and assigned to the 5 centers with funds from the College Work-Study Program of OEO.

Regents courses in ninth, tenth, and eleventh year mathematics are the only courses offered.

CUNY and Columbia University have joined together in a consortium to operate the Upward Bound phase of the program. Columbia University's "Double Discovery Program" conducts an 8 week, on-campus residential summer session. This provides a scholastic program, a cultural enrichment program, resident college student-counselors, and room and board.

B. Evaluation - Class I, consisting of 580 students, was originally enrolled in September 1965; these students are now in the twelfth grade. One hundred fifty of these students had been enrolled in the 1965 Upward Bound summer session at Columbia University.

Class II, enrolled in September 1966, included 578 tenth grade students. The 1966 Upward Bound summer session at Columbia University included 286 students, 150 in Class I and 136 in Class II.

Ethnic status of the CDD students, as of fall 1966, is approximately 44 percent Negro, 23 percent Puerto Rican, 2 percent Oriental, and 31 percent other.

Economic characteristics of the student population have been analyzed in some detail. The mean weekly income of CDD Class I families, $97.53, was utilized by families whose mean size was 5.24 members. The mean weekly income of Class II families, $100.24, was utilized by families whose mean size was 5.51 members.

The academic achievements of Classes I and II are being studied in considerable detail.

MEAN JUNE AVERAGE OF CDD I AND II, AND CONTROL* I AND II

Class	Year	Mean	
		CDD	Control
I	1966	73	73
I	1967	70	75
II	1967	71	74

* Control - all other college preparatory students in the same schools.

MATHEMATICS REGENTS EXAMINATION
STATISTICS OF CDD I AND II, AND NEW YORK STATE

Class	Date	Examination	No. Written	% Passing	% Passing in State
I	6/'66	Ninth Year	482	60	69
I	6/'67	Tenth Year	134	47	77
I	6/'67	Eleventh Year	125	58	76
II	6/'67	Ninth Year	164	37	67
II	6/'67	Tenth Year	239	60	77

CDD Staff: It is important to note that this program is primarily a joint venture of the Board of Education and the City University, as distinct from other cooperative programs. Each institution provides specific aspects of the program's logistical supports. Thus, the Board of Education, under ESEA, Title I and other funds, provides the following special arrangements for each Center:

a school coordinator at headquarters

additional teachers to permit smaller than usual class sizes (15-20)

augumented guidance service (1 counselor/100 pupils)

a school coordinator in each center (6 periods/day)

a secretary in each center (full time)

The City University, under N.Y. State, OEO, HEW, and the City University funding provides:

a full-time director

a coordinator

an administrative assistant

college professors as curriculum consultants to H.S. teachers (6 full-time equivalent)

four research assistants
(2 full-time, 2 half-time)

research consultants

tutors for CDD students
(College Work-Study Program funds)

scholarship-stipends for CDD students
(OEO Community Action Program funds - $5/week)

Budget: $1,104,000 (ESEA); mathematics allocation - $246,500

8. PLAINVIEW (Oyster Bay 4)

Skills Laboratory in Mathematics for Grades 7-10;
216 Disadvantaged Children

Nature of Project: After much discussion with various professional personnel it was determined that the most pressing problem in the district was the indifferent or overwhelmed, disadvantaged student who did not try, and who seemed to feel there was no hope. It was further determined that this became more evident and recognized by student, parent, and professional personnel in the beginning junior high school years. Therefore a plan was developed to try to change the self-image of these students regarding the basic skill areas needed for success in school.

Approximately 7 percent of the youngsters in grades 7-10 have been identified as educationally disadvantaged students. These students receive, in addition to regular classes, compensatory education in remedial mathematics.

An inservice workshop for teachers of these classes was conducted in the spring of 1966, as well as curriculum development during the summer of 1966, to prepare for the basic program in the school years of 1966-67 and 1967-68.

Procedure:

A. Program - At each grade level, 25 to 30 students in the public schools, and 14 students in the parochial school are selected to participate in the program. These students have tested scholastic ability on the Otis Intelligence Test of 90+, and are one and a half years or more below grade level in mathematics.

The students in the public school are placed in the same mathematics classes which meet 4 to 5 times a week. The students then are divided

into groups of approximately 7, and receive 2 additional instructional periods per week.

Since the primary aims are: "to improve self-image, to stimulate interest and motivation in Math leading hopefully to an improvement in the child's general attitude toward himself and the school," the following methods are employed:

informal atmosphere

no testing or homework

games to be used whenever possible

use of concrete materials

actual construction of shapes

use of calculators

experiences so designed that everyone could achieve some measure of success

B. <u>Evaluation</u> - Standardized group testing:

Science Research Achievement Test, Grades 3-6

Iowa Basic Skills Achievement Test, Grade 7

Otis Intelligence Test, Grades 3, 6 and 7

Title I teachers have been very pleased with the results of this program. Administrators, classroom teachers, guidance counselors, have also reacted to this program extremely favorably. A great many youngsters, after completion of a portion of the entire year, have been discharged from the program into better academic groupings. Disciplinary records and attendance records for these Title I students have shown a decrease in disciplinary problems and an increase in attendance. Effort and interest on the part of these students in regular classes has markedly improved, according to their regular classroom teachers.

The Title I program has been highly successful in meeting its primary objective of a better self-image for the individual student and a changed attitude toward school. In general, it has shown that these students are capable of learning. It has helped other staff members and administrators to take a new look at these youngsters and to change preconceived ideas regarding approaches, curriculum, that they are able to learn at this late date in their education, and that discipline, attendance, and general attitude changes can be effected.

Budget: $29,500

9. BREWSTER (Southeast 1)

Basic Skills Assistance Center; 240 Disadvantaged Children

Nature of Project: The project is designed to give remedial services in mathematics during the regular year and summer school, to those children who have not profited sufficiently from the normal school instruction. The students need personalized attention in order to overcome their learning difficulties. The classes are ungraded, with the divisions of primary, upper elementary, junior high, high school, and preschool. The younger siblings of the youngsters in the higher groups attend the preschool class.

In addition to the small class size of 15, the rooms are equipped with specialized teaching materials such as SRA materials, manipulative mathematics devices, and supplemental books in great quantity. The teacher is assisted by unpaid volunteers in the preschool and elementary classes. It is expected that the small, more or less homogeneous class with a personalized program for each child, will motivate the child and help him solve his learning problem.

Program Procedure:

1. Regular Year - In grades 3 through 6 the maximum number of students included in the program is 90, placed in groups of 15 or less.

In grades 7 through 8 the maximum number of students in the program is 30, placed in groups of 15 or less.

Students are instructed twice a week (10 weeks) in the same manner as the summer 1967 program. The students are exposed to 30-minute periods in math, English, reading, and study skills, during the after school hours from 4 to 5:30 p.m.

The following meetings are held once a month:

(1) Special subject area consultant (math, reading) meets with

teachers in the respective fields.

(2) Consultants discuss with teachers the nature and needs of students with learning problems.

(3) Title I teacher meets with regular classroom teacher of the student.

(4) Title I teachers meet with parents of students in the program.

2. Summer School - The first week of the 6-week session is used for staff preparation and indoctrination. The students are divided into classes of 15, homogeneously grouped, in the categories of primary and upper elementary (90), and preschool (15). With the exception of the preschoolers who remain with one teacher and her aide for the total session of two and one-half hours between 9:00 a.m. and 12:00 noon, the students attend 1 to 3 classes daily for 5 weeks depending upon their needs. Class periods are 50 minutes in length.

Each class provides a personalized approach to each student's learning problem in the area. The teacher uses supplemental books, pamphlets, periodicals, commercial courses (SRA), machines, and manipulative devices. (During the 2-hour afternoon session the teachers meet with the specialists, parents, and principal to assess and evaluate the progress of the program in terms of individual children.)

Each private school in the area is aware of this proposal and is invited to send students to the classes.

Budget: $4,200

10. CORNING

Program for Educationally Disadvantaged; 100 Disadvantaged Children

Nature of Project: Math instruction for third and fourth grade pupils who have been identified as educationally disadvantaged. Approach, methods, and materials are different from the type previously experienced which caused frustration or defeat. Emphasis is placed on high motivation, high action, and extensive individual help, provided through low teacher-pupil ratio.

Program Procedure: This project takes 10-12 third and fourth grade students in 5 public and 2 private schools, and gives them intensive instruction in mathematics and reading for one-half of a day. In 2 public schools, where the need is deemed greatest, there are 2 classes of 10-12 students each in this category. These students are given instruction with special materials and equipment used to provide a new approach to these skills. Class activities are of a high interest, short duration type which hopefully provides a success experience for these youngsters and gives them a new attitude and approach to the whole educational experience. These students return to their regular classrooms for all other activities so as not to destroy the self-contained classroom concept of the district.

Budget: $35,476; mathematics allocation - $15,000

11. CORTLAND

Academic and Attitude Development;
184 Disadvantaged Children

Nature of Project: A summer school program is conducted and housed in 2 of our elementary buildings.

A second phase of the project initiates a highly individualized arithmetic program which was developed during the summer of 1967 under ESEA, Title I. The program is designed for students of the 4th, 5th, and 6th grade levels. The program, which is unique to the system, will allow students to progress at individual rates of speed and seek understanding appropriate to individual levels of ability without fear of competition from peer groups.

Program Procedure: For grades 1 and 2, helping teachers assist the regular classroom teacher in a "team" approach.

For grades 3-6, students attend for 40 minutes on a staggered schedule. Groups consist of 5-6 students. One regular classroom teacher and one teacher aide per level work with children on a one to one basis. Programmed materials are used extensively to further insure individual attention and success.

The individualized arithmetic program is based on a series of study plans which block out the year's work into approximately 3-week segments. Seven study plans were devised -- complete with plan sheets, answer sheets, tests (pre, post, and diagnostic), enrichment materials, individual folders, and class charts.

The study plans concentrate on those topics which are fundamental to the 6th grade curriculum. While these constitute the nucleus of the mathematics program, room is built-in for many other areas and types of

instruction. Poor use would be made of them if they constituted even a whole lesson. Indeed, the plans need not be used for a day or a week at a time.

A sample lesson might look like this:

A. 5 min. - mental arithmetic, quiz

15 min. - Madison Project, number line exercises, Wirtz-Botel material, games, or instruction on material in text.

25 min. STUDY PLAN - Here teacher works with an individual or small group which is having difficulty.

or B. 5 min. quiz

30 min. STUDY PLAN - INDIVIDUAL instruction and encouragement

10 min. CLASS INSTRUCTION ON AN UPCOMING DIFFICULTY

Materials needed for the plans are these:

1. Plans themselves
2. Answer sheets

These are placed in envelopes and labelled

3. Tests and answers, kept by teacher
4. Individual folders in which students keep their work
5. Class record; posted on large chart in room
6. Large box, shelf, or file in which to display plans, folders, and answer sheets
7. Enrichment materials, projects, and puzzle file

As a child begins work he obtains his folder from storage space and returns to his seat. After working on a designated number of problems he obtains an answer sheet from storage and marks his paper. The answer sheet is returned. Any mistakes must then be reworked and recorrected. When one plan is completed, he obtains the next one and continues. After all of the folders are restored at the end of the period the teacher has

an opportunity to evaluate the quality of the work being done. Any remarks can be written on the student's paper so that they are at hand when the student begins work next time. The potential for class flexibility is limitless.

Budget: $61,500; mathematics allocation - $1,000

12. FORT PLAIN (Minden 1)

Projects for the Improvement of Learning and
Instructional Services; 85 Disadvantaged Students

Nature of Project: The purpose of this proposal is to provide a means whereby the school can develop and administer various educational projects to meet the needs of the educationally deprived child. Within the scope of this program, project areas are developed and organized in an attempt to develop the deprived child's educational ability to the utmost. The project also points out that the educationally disadvantaged are related to the culturally disadvantaged.

In order to do the most effective job with the educationally disadvantaged, the teacher must be knowledgeable in the best instructional methods and have materials designed to aid in meaningful individualization of instruction.

To this end, the objectives and demands of this program are met only by addition of equipment, materials, and personnel.

Due to the pupil enrollment in traditional academic subjects, it makes it impossible to provide proper instruction and qualified staff to meet the needs of disadvantaged youth within the Fort Plain High School. To provide strong development of skills in English, science, mathematics, and language it is necessary to establish more class sections. Additional sections in these basic skills are added to give disadvantaged youth the kind of background they need to broaden their educational and occupational outlooks. In order to meet the needs of these students an additional science-mathematics teacher and a French-English teacher hired for the school year.

The results of the New York State Pupil Evaluation Program, which tested children in the areas of reading and arithmetic, have indicated that many of our students were identified as "educationally disadvantaged." Recognizing the importance of these two core subjects, we are conducting a remedial arithmetic and a remedial reading summer school course for these children in the intermediate grades. Through the individual attention given to these pupils, we hope to provide them with an opportunity to become better educated citizens, able to adjust more readily to a modern society.

Program Procedure: The following report is for the purpose of identifying "educationally disadvantaged" children at Fort Plain Central School. As suggested by the State Education Department the 30th percentile is being used to designate educational disadvantagement. The attached table shows the number of students that can be identified through this criteria.

GRADE	TEST	RAW SCORE INTERVAL	CUMULATIVE % for F.P.	NUMBER OF PUPILS TESTED	*EDUCATIONAL DISADVANTAGED OR NO. OF PUPILS 30% AND BELOW*
One	Reading	44-47	19	113	11
Three	Reading	28-31	40	97	39
Three	Arithmetic	24-27	21	97	20
Six	Reading	36-39	40	108	43
Six	Arithmetic	24-27	29	108	31
Nine	Reading	24-25	10	100	10
Nine	Arithmetic	14-15	5	100	5
			Totals ...	723	159 - 22%*

PROVISION FOR IMPROVEMENT OF FUNDAMENTAL SECONDARY SKILLS FOR DISADVANTAGED YOUTH - Continuation of 1966-67 E.S.E.A. - Title I Project

1. General Math is now required of all freshmen; heretofor, it was only an elective.

2. All business students are required to take Math 9. This was never required because of a lack of facilities and instructional services.

3. Terminal algebra has been added for disadvantaged students. This was never done before because of lack of facilities and instructional services. Eight out of 31 passed the Regents examination; these students would not have previously been given such an opportunity.

ELEMENTARY SUMMER SCHOOL - 1967-68
E.S.E.A. Title 1

Objectives of the Project

1. To give the educationally handicapped child an opportunity to improve his arithmetic skills, particularly pertaining to addition, subtraction, multiplication, and division.

2. To give the educationally handicapped child an opportunity to improve his reading skills, particularly those pertaining to word recognition, phonetic application and association, word identification, syllabication, and comprehension.

3. To provide the educationally handicapped child an opportunity to work in a situation in which he can't "fail"; i.e. no grades will be given; in their place, oral encouragement will be used.

Selection for the Project

The 9 third and fourth grade teachers are asked to recommend students from the lower homogeneous reading and arithmetic groups, paying particular attention to those who scored at or below the 30th percentile in the May administration of the Stanford Achievement Test in the third grade, and the Iowa Basic Skills Test in the fourth grade. Approximately 40 students are ultimately selected from the 65 that scored at or below the 30th percentile. If the need arises, students are selected from those who scored up to the 35th or 40th percentile.

Budget: $35,000; mathematics allocation - $10,200

13. GILBOA-CONESVILLE (Gilboa 1)

Assistance to the Educationally Disadvantaged;
75 Disadvantaged Children

Nature of Project: This project is a continuation and expansion of activities, some of which have been carried on for 3 previous years and some for 1 or 2 years. The continuity is as follows:

ACTIVITY	1964-65	1965-66	1966-67	1967-68
1. Summer reading 4-6	*	*	*	*
Summer reading 4-8		*	*	*
Summer reading 4-12			*	*
2. Summer Arithmetic 4-8				*
3. Remedial Reading teacher 2-6		*	*	*
Remedial Reading teacher 7-9			*	*
4. Modified Joplin Plan 4-6				*

Program Procedure:

Summer Arithmetic - This program is an expansion of the summer reading improvement program, to include pupils that are underachievers in arithmetic skills. This program includes pupils in grades 4-8 with the accent on small group instruction in particular areas of disability in arithmetic skills. The program runs for 5 or 6 weeks, concurrently with the summer reading program. Pupils attend school for about 2 hours a day with the time divided between instruction in arithmetic concepts and application skills, and practice and computation skills. Three classroom teachers are involved with about 35 children, in grades 4-8. The students are invited to attend by a letter sent home in May. Selection is based upon achievement scores in relation to expected achievement level, teacher recommendations, and diagnostic tests. Provisions are made for selection of pupils who qualify for both summer programs with placement being made in the area

of greatest need for the individual student. Transportation is provided both ways for all students attending. A variety of materials is used, depending upon the skills which need concentration in any particular student group.

Joplin Plan - The New York State Pupil Evaluation Program for 1965-66 and 1966-67 indicated a pronounced increase in the number of pupils who are failing to reach the level of minimum competency at the sixth grade level in arithmetic and reading. Further testing and investigation on the local level to determine the cause of this problem, indicates a similar lack of achievement at the 4th and 5th grade level. Briefly, about 35 percent (40) of students of grades 4, 5, and 6 (number of children in grades 4, 5, and 6 - 114) are failing to achieve. These children are from low income families and possess these characteristics indicated on an original application for Federal Assistance. In order to bring these children up to the minimum level or beyond, we have introduced the Modified Joplin Plan in grades 4, 5, and 6.

The Joplin approach should facilitate grouping for instruction, use of teachers and use of materials.

Pupils in grades 4, 5, and 6 are grouped according to achievement test scores (total language and total arithmetic - Stanford Achievement Test), teacher recommendations, and mental age.

Teachers are assigned on the basis of teaching strength, past experience, and where possible, personal preference.

The children are split into 6 basic groups for both arithmetic and reading. The lowest group is kept smaller than the others. Pupils move up and down, from group to group, as this need arises.

Budget: $17,500; mathematics allocation - $1,500

14. GREENE

Developmental Programs; 133 Disadvantaged Children

Nature of Project: Throughout all attempts to meet the overall goal of providing for the needs of disadvantaged children stress is placed on the fact that the programs are developmental in their nature. They are developmental in the following two manners; one, they attempt to provide for the children throughout the course of their elementary school years starting at their entrance into kindergarten and through the sixth grade year. With this procedure, students are continually compensated for their deprivations, particularly those for whom a short term program will not bring about satisfactory results. Secondly, programs are developmental in the sense that they are not static, but are continually in a state of change and improvement of their basic curriculum. Therefore, at the present time, this project continues 4 phases of the total project: New Kindergarten, Developmental Skill Center, Learning Skill Center, and Remedial Arithmetic Program.

Program Procedure:

New Kindergarten - The kindergarten is one in which a factored approach is employed in providing an instructional program. In doing so 6 factors are selected that provide for the needs of the disadvantaged and rural children by tracking them in specific developmental programs which are orientated toward specific needs. The 6 factors are programs for: the Development of Visual Perception, Auditory Perception, Prenumber Readiness, Language and Communications, Social Concepts, and Background Experiences. These factors are vital in fulfilling the needs of the young children. Research experiences with children with learning difficulties and other

deprivations, point out a need for development training in these areas, if the children are to lead successful lives in both, the academic and behavioral aspects of their future school years.

This program has been initially implemented creating a kindergarten with 6 areas engineered to facilitate the goals of the particular program. Teacher's aides are employed and trained to help assist in the teacher's daily program. Curriculum development for each area has been done and is continually being refined. Through the development of the program, disadvantaged children are placed into areas of need where compensatory experiences attempt to overcome their lack or deprivations. At the same time each youngster is placed on a level in which he can be successful to the limits of his total capabilities.

Developmental Skill Center - This area provides compensatory programs for the disadvantaged at the first grade level. The children have been identified through complete diagnostic evaluations conducted by the school psychologists and their previous kindergarten teacher. Based upon this evaluation of strength and weakness, a program of developmental instruction is provided for the child. It is implemented by the creating of an appropriate learning area, the selection and training of the most capable teacher, and enhanced by the provision of a multitude of materials and instructional equipment geared to individualizing the prescribed program. In addition to this, 2 teacher aides, of which only one is employed through Title I funding, provide for needed personnel to fully meet the goal of individualizing the programs received by each youngster. The children are programmed into the center from their classroom based upon the needs that make them disadvantaged in their learning process.

Learning Skill Center - To continue a developmental sequence of providing for the disadvantaged youngster, this phase is for those children at the second and third grade levels. Essentially, the activities and experiences that are encountered in this center are the same as those of the previous area, except that they are geared to an older child. The children continue to receive a prescribed program based upon continuing evaluations of their needs and performances. In doing this, 2 teachers and an aide are employed to provide the instructional service to the children. A school aide is assigned to the role of clerical duties of this program and other Title I projects (records, tracking of pupils, and required needs). The room facilitates small and individualized instruction. It is equipped with advantageous material and instructional aids that enable the teachers to provide the prescribed program.

Remedial Arithmetic Program - The program has provided youngsters with additional help in reading in the past, but a similar number have difficulty in the area of acquiring arithmetic skills. Thus, last year the employment of a teacher enabled the district to provide direct service to the child; a program to help him compensate for his lack in this needed academic area. The program is aimed at children within the intermediate grade level in which small groups of children at a time can receive the additional help to support the continual classroom program.

Budget: $64,000; mathematics allocation - $15,000

15. HINSDALE

Improving Baskic Skills in Mathematics; 113 Disadvantaged Children

Nature of Project: The objective is to improve the basic skills of mathematics. If the computational part of mathematics is improved, the entire mathematics program benefits. The educationally deprived need to be aroused to their needs, and provided with interesting materials for drill.

More visual aides are used, so the children develop better understanding and concepts. Number lines for the blackboard for each child and for the floor (Kdg, 1st, 2nd) are used. These help the child to learn the fundamental operations.

The overhead projector is used for instruction and class participation. Transparencies are made to help promote interest, develop skills, and provide drill.

An arithmetic skills program was innaugurated when school started in September 1967.

Program Procedure: Basic to success in solving arithmetic number and story problems is the ability to retain them accurately. Subsequently, after students have been introduced to the basic arithmetic processes, they need to develop instantaneous responses to the addition, subtraction, multiplication, and division facts. Later, story problems require even more complex reactions; for such problems must be read and comprehended accurately, the arithmetic facts isolated, and decisions confidently made concerning the arithmetic processes needed to arrive at the correct solution. The emphasis in today's modern math on understanding concepts should be reinforced by the development of proficiency in the fundamentals and processes involved in computation and problem solving.

The arithmetic skills program, developed in answer to the above needs, is an invaluable supplement to mathematics instruction. This program involves the use of instrument techniques which present challenging timed exercises to help students develop proficiency in the seeing, thinking, and computation skills needed for success in arithmetic.

Students cannot wander visually over the material presented, but must make use of a single brief impression. As a result, they learn to see in a more aggressive and rententive manner. In order to perform the task at hand students must be alert, focus their attention, and maintain sustained concentration.

Students enjoy competing with an instrument and are highly motivated to respond correctly.

Student abilities are clearly and quickly evident to the teacher as students respond to instrument-paced training.

The wide range of number and story problems provides material for various age and ability groups. The program covers skills taught in grades one through twelve, and enables the teacher to select appropriate exercises for students at all levels of arithmetical ability and achievement. Thus every student regardless of his starting level can be trained with material that provides an acceptable challenge and allows for consistent improvement.

Available for use with the instrument is a library of 225 filmstrips containing over 10,000 problems for grade levels 1 through 12.

Each floor has a machine available and a schedule for use in each class is arranged. Short sessions (8-10 minutes) repeated 2 or 3 times a week, are recommended for best results. This program is followed with these classes. The film is centrally located so it can be easily obtained. A workshop is held for all teachers using the program.

Instruction in small groups is best as individual needs can be met. Again the teachers' aides assist in these classes.

Charts, records, and film are also used to create interest and provide drill.

Budget: $18,000; mathematics allocation - $6,300

16. IRONDEQUOIT (Irondequoit 3)

Summer Instructional Program for Underachieving 3d Grade Students with Followup for School Year 1967-68; 60 Disadvantaged Children

Nature of Project: This program is an outgrowth and continuation of a program begun in April 1966 with 3d grade underachieving students. As in the original project, children are identified through a combination of (1) a statistical analysis of achievement and ability test scores and (2) teacher's judgment. Parents are then contacted regarding their child's participation in program and their own involvement in (1) visitation during summer, (2) group meetings, and (3) individual conferences. A school social worker will carry on the major part of this activity, including collecting of family data. Individual diagnostic work with children includes intellectual evaluation, assessment of reading skills, perceptual development level, and emotional social patterns. A 6 week instructional program includes 4 teachers; 1 helping teacher, and 3 teacher aides.

To insure maximum understanding and knowledge about these children, the following steps are planned: a meeting prior to the close of the school year (June 1967) with 4th grade teachers to alert them to the summer program, a followup meeting in September, and to have these teachers observe the summer session.

Program Procedure: Sixty children coming from 2 central school districts, including 2 nonpublic schools, are divided into groups of 15 children and receive instruction in basic skills of reading and arithmetic. The major portion of time is used in strengthening the child's positive behavior and feelings about himself and school by providing opportunity and activity

to reenforce his communications skills (speaking, listening, reading). Work is done to develop and sharpen the child's perceptual motor skills. Time is allotted, under supervision of the school psychologist, for those children indicating lacks in these areas. Physical exercises, games, and paper-pencil activities are incorporated into the activity and language arts program.

Children attend classes 2½ hours daily for 5 weeks. The staff works in small groups, daily, after the instructional period, reassessing and planning current day to day activities. Two afternoons a week, full staff meetings are held.

Two evening meetings for all parents are held in addition to scheduled individual meetings with teacher and/or consultants. This part of the program is continued during the school year with monthly group-parent meetings. These meetings focus on general problems and frustrations of the group, as well as continued discussions of school instructions and demands.

Regular monthly meetings with current teachers of children in the program are held. These meetings focus on current problems the children and teachers are facing, as well as the sharing of successful experiences. Summer school teachers, with a team (director, school psychologist, and school social worker) serve as "key people" in these meetings. Expectation is for a gradual and continuing growth of information to be built up concerning ways of using activities and materials with these children to build their self image of success and to support the teacher's purpose, that of teaching many different children in a given classroom.

Children and teachers have access to the team on an individual basis throughout the school year. These individual meetings, as well as group meetings include public and nonpublic school personnel. The activities include counseling, further evaluation as needed, supplying of special instructional materials where possible, and continuing contact with family as individual situations require.

The program includes for the first semester of the school year 1967-68, a limited followup of children in the current program (1966-67). These children have moved into the 5th grade. Teachers and counselors are seen, and pertinent knowledge about these children, their families, and school progress are shared. This is needed due to the increased departmentalization of the school program and its accompanying impersonalization.

Budget: $37,600; mathematics allocation - $8,400

17. MOUNT KISCO (Bedford 2)

Cultural, Educational, and Vocational Upgrading Project;
200 Disadvantaged Children

Nature of Project: All activities described will take place at or emanate from Hillcrest Center for Children.

The Cultural Educational, and Vocational Upgrading Project will offer 200 children at Hillcrest Center a variety of experiences:

a. Music, Dramatic, and Visual Arts Workshop

b. Creative Day Camp

c. After School and Summer School

d. Tutorial and Study Skills

e. Work Program

Program Procedure: All children at Hillcrest come from situations in which homes have deteriorated to the point of disintegration.

Their educational experiences before coming to the Center have been frequently disrupted by virture of their problem-related behavior, school inadequacy, and complete lack of emotional support from their families.

They demonstrate educational retardation, cultural deprivation, and emotional difficulty to a very marked degree.

They are in many, if not all cases, unmotivated and confused as to school and the opportunities school offers. They tend to be extremely dependent with little understanding of the relationship between work and the wherewithal to obtain the good things of life.

Hillcrest's cultural, educational, vocational upgrading project will supplement efforts of the school's and the institution's ongoing programs to reduce these problems.

Cultural Program I (Music, Dramatic and Visual Arts Workshop) - Widen cultural horizons and develop ability in the arts by producing a musical

play or operetta which will combine instruction in speech, music, photography, singing, dancing, acting, stage craft. In addition, there are visits to museums, attendance at plays, concerts, exhibits, etc.

This aspect of the program involves 60 junior and senior high school children for five 4-hour periods per week for 6 weeks during summer months.

Cultural Program II (Creative Day Camp) - Enrich cultural background and develop ability in the arts by providing, largely in an outdoor camp-like setting, instruction in dramatics, music, nature study, dance, woodcraft, athletics. There are trips to State parks, museums, and other places of interest.

This aspect of the program involves 50 elementary school children 4 hours per day, 5 days per week for 6 weeks during July and August.

Educational Program I (After School and Summer School) - Improve reading and arithmetic skills by small group and individual instruction. Stimulate interest in social studies by introducing material related to problems of day to day living in the community and by trips to places of educational interest.

This phase of the program involves 50 elementary school children 3:00 - 4:45 p.m., 2 times per week, 1 hour and 45 minutes per day during spring semester 1968 and the same number 3 times per week 9:00 - 12 for 6 weeks in July and August.

Educational Program II (Tutorial and Study Skills) - Tutorial and study skills help for high school children, on an individual and small group basis is provided. Thise phase offers 40 high school children tutorial help between 6:30 and 8:00 p.m. 4 nights a week during the spring semester, February 1 - June 20.

Work Program - Provide students with vocationally valuable paid work experience and related educational opportunities. Work is in such areas as gardening and greenhouse operation, lawn care, grounds maintenance, painting, sewing, cafeteria operation, simple construction, etc.

Forty different junior and senior high school age children are involved in this program; about 20 at any one time.

As indicated above, this phase is largely an outdoor program taking place on week ends 5 hours per day between January 1 and August 31, 1968.

Budget: $46,300; mathematics allocation - $4,800

18. NORTH BABYLON (Babylon 3)

After School Learning Program; 280 Disadvantaged Children

Nature of Project: This is a program designed to assist the district's disadvantaged children, grades 3 through 6 with fundamental learnings in the areas of reading and arithmetic. Small group instruction is given for two 1-hour periods immediately following the school day each week for a period of 12 weeks.

Program Procedure: Although culturally and economically disadvantaged, the children invited to this program must demonstrate some potential for success. It is therefore expected that these children meet the following criteria:

a. IQ's within ranges considered normal

   Determined by standardized and individual evaluations given as part of the regular school program.

b. Free of inhibiting behavior problems

   Determined by the classroom teacher, building administrator, and school psychologist. Use of personality profiles by referring teachers, administrators, and psychologists assist in selecting these children.

This program serves approximately 280 children grades 3 through 6 in the district's 7 elementary schools.

One group of approximately 10 children at each grade level, 3 through 6 are provided with 1 hour of instruction at the end of the school day.

Approximately 30 minutes for each area is devoted to arithmetic and reading.

Groups meet 2 afternoons per week, Monday and Wednesday or Tuesday and Thursday.

Employment of teachers with special graduate school hours in the teaching of the elementary school child.

Objectives for the arithmetic area:

a. To maintain and further develop the skills taught within the regular school day.

b. To give the child a better working knowledge of fundamentals in arithmetic computation and problem solving.

Activities include use of appropriate learning materials for development of fundamental skills. (Workbooks, number games, flash cards, etc.)

Budget: $21,300; mathematics allocation - $8,700

19. NORTH COLONIE (Colonie 5)

Remedial Help for Educationally Deprived Children;
470 Disadvantaged Children

Nature of Project: This is a two phase project. The purpose of the first phase is to provide remedial help in the basic reading and mathematics skills to educationally disadvantaged public and nonpublic school children.

The second phase offers evening guidance services to high school dropouts and potential dropouts.

Program Procedure: The children included in this program are identified as those whose achievement in reading and/or mathematics is determined to be 2 years or more below normal for their age and grade. The project consists of 3 parts as follows:

At the elementary level, 5 certified helping teachers are employed. The instruction given by these teachers is supplementary to classroom teaching and of a special instructional nature. These teachers are responsible to building principals and work on a tutorial or small-group basis with those pupils who are considered in need of additional specialized instruction. Obviously, this includes children who are significantly underachieving or falling into the "slow learner" category. All of the various pupil personnel services of the district are used to identify and serve these children, and parent-teacher conferences play an integral part in the program. Roundtable type discussion is used as the situation dictates. When such discussions take place, the collective group includes the building principal, the director of pupil personnel services, the classroom teacher, the helping teacher, the school-nurse teacher, and anyone else who is involved in the individual child's remedial program.

Five teacher aides are employed whose duty is to assist the helping teacher with the compilation of resource and audiovisual materials and other supplies pertinent to her job. The teacher aides help with such matters as test scoring and perform the routine clerical tasks. The employment of aides allows the helping teacher to give maximum time to working with the educationally deprived children. Each teacher aide divides her time between assigned schools, spending an equally proportionate amount of time in these schools as the helping teachers so assigned.

Dropouts have been identified by a check of our "left school" file. Potential dropouts have been identified by a review of current and permanent records and are those pupils whose overall achievement has fallen 2 years or more below grade level.

At present there are some 90 pupils identified in these 2 categories.

Budget: $79,500; mathematics allocation - $20,000

20. OWEGO

Individual and Small Group Instruction in Mathematics; Disadvantaged Children

Nature of Project: The basic aim of this activity is to provide an opportunity for those students identified as educationally disadvantaged to receive individual attention and instruction from members of the project team. Remedial programs in reading and mathematics have been developed to meet the individual needs of these students throughout the school year and the 5 week summer program. Fully equipped learning centers in each of the elementary schools serve as the instructional centers. Teacher aides for each kindergarten class allow for small group instruction within the classroom.

Program Procedure: The first phase of the activity, which can be described as remedial, includes the services of the district's coordinator of elementary mathematics, 2 reading teachers, and 1 additional reading teacher for full time at Central Elementary School, this year's target area.

Following a diagnosis and identification of each student's learning disability or disabilities, the members of the project team, in conference with the student's classroom teacher, plan and develop an instructional program that best meets the needs of the individual.

Using the learning centers in each of the elementary buildings, the team members provide individual and small group instruction. Since each program is designed to meet the specific needs of an individual, these centers require a sufficient and varied supply of textbooks, reference material, audiovisual materials, and the equipment necessary for their utilization.

An inventory of student's needs and a progress report are kept for each participating student. This information is made available to the classroom teacher at all times for the purpose of coordination of effort and to provide for a continuous evaluation of student growth.

A second phase of the remedial program is the extension of the school year by a 5 week summer school program. A staff of 23 teachers, including a physical education instructor, librarian, and a mathematics and reading teacher continue the work initiated during the school year. The average teacher-pupil ratio during the summer months is at 1:7.

A third and final phase of the activity involves the children from disadvantaged homes and their readiness development in kindergarten. These children need the same readiness as other kindergarten children, only more of it. Therefore, the program involves the use of teacher aides as a means of facilitating small group instruction, particularly where these children are concerned. In addition, manipulative devices such as bead frames and counters are used and experimentation with the Frostig Program as a means of developing pattern recognition is being carried on.

Budget: $45,500; mathematics allocation - $3,300

21. SANDY CREEK

A Developmental Mathematics and Language Arts Summer School
for Disadvantaged Students in Grades 3 Through 8;
70 Disadvantaged Children

Nature of Project: This 6 weeks summer school session project is designed as a part of an overall program to raise the verbal level of the educationally deprived students in grades K through 12. The objective of the program is to correct many of the specific deficiencies within the existing reading and mathematics programs.

The correction of some of these deficiencies should lead to greater achievements in the future by the identified pupils and, therefore, more interest on their parts.

The ESEA states that there is a high correlation between socioeconomic deprivation and low academic performance. The administration feels that if a special summer session is instituted in the critical areas of language arts and mathematics, the academic level of the disadvantaged can be improved. This will in some way compensate for the disadvantaged pupil's deprivation and allow him to perform at a higher level during the regular school year.

Small-group instruction together with sufficient time given to teachers to develop appropriate instructional materials and procedures will insure a greater degree of improvement than if the students were placed in a traditional summer school. All students in the district are eligible for participation.

Program Procedure: The lowest achievers in grades 3 through 8 are recommended for the summer session. In general, their achievement is 2 or more years below normal grade level.

Stage 1 - Teachers meet in a spring orientation period. Those selected for the program are chosen according to their past success in dealing with this type of student, their degree of interest in wanting to aid the disadvantaged, and their desire to develop materials and procedures that would be useful during the regular school year and in future programs. They are instructed, during stage 1, on the special educational needs of the identified students. They receive instruction in an inservice workshop situation from State University of New York at Oswego prior to summer session.

A reading specialist informs the selected teachers of the importance in recognizing the reading lag experienced by most of these students. The teachers are given materials and methods that help the teacher successfully present skills and information necessary to raise the educational level of the identified student.

The local school psychologist discusses with the teachers, the special problems that must be considered. They are told of the special approaches to learning that must be followed and are informed of current research and successful approaches to instruction of the disadvantaged.

Subject matter specialists in the areas of language arts and mathematics from State University of New York at Oswego help the teachers establish specific skills and areas of information to be covered.

Stage 2 - After receiving instruction and guidelines in stage 1, teachers meet in specific subject matter groups. They enlarge on the specific skills and information decided upon in stage 1. Here they develop actual classroom materials and procedures to be used in the first week of the summer session. The actual instructional materials and procedures are teacher-developed. They are based on the exact immediate needs of the identified students.

Stage 3 - During the 6 week summer session, teachers meet with the identified students in groups for an instruction period from 8:30 to 11:30 with a short recess. Students participate in the areas of language arts and mathematics, receive aid in the specific areas of instruction in the amounts commensurate with their individual needs and weaknesses, and are flexibly assigned to groups according to the student's instructional needs.

All materials, including paper, pens, pencils, and notebooks are supplied as the need arises. This is done to make the program as appealing as possible. No child is prohibited from attending summer session because he cannot afford the necessary supplies. Transportation is provided for all students who require it.

Teachers begin instruction by using materials and procedures; evaluate them in an afternoon session -- from 12:30 to 3:00. During this session teachers also develop additional materials and procedures. Their degree of success and reasons for success or failure are recorded.

Budget: $9,200; mathematics allocation - $3,200

22. SEWANHAKA (Hempstead 2 CHS)

Educational Center; 125 Disadvantaged Children

Nature of Project: Central High School District No. 2 has a hard core of youngsters requiring remedial help beyond the scope which the present faculty in reading and mathematics can provide. For example, there are in the district 240 youngsters whose reading is not only 2 years below grade level standards, but is 2 years below their own intellectual potential as well. That is, they are reading 2 years below the level which their I.Q. indicates they are capable of attaining. Helping them close the gap between where they are and where they should be is a major purpose of the proposed ESEA, Title I program attached.

Standardized test samples indicate that more than 1,600 pupils in grades 7-9 in the district are performing 1 or more years below grade level standards in mathematics. Providing help in mathematics for these pupils is another major objective of the program.

The project consists of a three pronged attack on educational disadvantagement. Part I involves a summer school program. Part II involves selfcontained classrooms for children of high intellectual potential, but severe limitations in reading ability. Part III involves an after school remedial program and tutorial services.

Program Procedure: There are approximately 35 classes during the summer program, each class limited to 6 students. The grade levels are 7 through 9 with the greatest number of students in grade 7; a smaller number in grade 8; and the least number in grade 9. The 9th grade students are those on nonacademic tracks.

Certified teachers teach small groups of pupils, maximum of 6, homogeneously grouped as to grade level placement and instructional perform-

ance level. Efforts are made to identify weaknesses through formal and informal testing procedures, pinpointing instruction specifically at individual weaknesses. Material is mature in format and has high interest and low vocabulary content. Assignment of materials is keyed to specific problem areas as revealed by diagnosis.

In the Self-Contained Classroom the emphasis is on "how to read mathematics." The curriculum itself is limited to the nonacademic practical fields of mathematics: viz. mastery of fundamentals; estimation, analysis of verbal problems relative to whole numbers, fractions, decimals and per cent; measurement, and the proper reading of tools of measurement, and the like.

A dozen seventh grade children identified as meeting criteria of achievement far below their potential, receive specialized instruction from a single teacher who is a highly trained reading specialist armed with the latest equipment and materials for teaching reading in the content areas. Progress is assured by gearing instruction to achievement-level rather than grade-level placement and by offering materials and instruction designed to minimize frustration and guarantee success.

The reading and mathematics aspects of the after-school program offers the same type of instruction as the summer school. These classes are limited to 6 students each and meet for approximately 1 hour per day, twice each week, after the regular school day. The major areas of mathematics that are stressed include fundamental operations, verbal problems, estimation, measurement, and basic geometric structures. By meeting regularly with an experienced teacher in the field of remedial mathematics, it is hoped that many of these important areas can be reviewed and stressed

in addition to providing the opportunity for the youngster to ask questions concerning the topics in mathematics which are most troublesome to him.

After-school tutorial assistance is provided for students in grades 7 through 9 who are not scheduled for regular remedial mathematics classes after school. As was evidenced in the FY 66-67 Title I program, many more students than could be handled in the regular sessions, requested extra help in mathematics. To relieve the situation, a room was set aside for these students, and an experienced teacher was made available, so that the students themselves could report when the need for help arose. On an average, 3 to 4 students reported daily, none of them on a regular basis. The proposal for this year is, in effect, to duplicate the tutorial mathematics room for students requiring help in Math 7, 8 and 9 (general math/ basic math).

Budget: $124,000; mathematics allocation - $35,700

23. VERNON-VERONA-SHERRILL (Sherrill)

Subject Matter Tutor-Teachers; 155 Disadvantaged Children

Nature of Project: In the early primary grades, some students have difficulty in understanding class work due to the lack of learning readiness. By dropping behind early in the school years, the gap between understanding and not understanding tends to widen and the child drops farther and farther behind his chronological age group as he advances through the grades. It then becomes a hopeless task to "catch up" with his classmates.

This project recognizes that the student who is slow in comprehending will have difficulty in "keeping up" and therefore, by providing a team of tutor-teachers to work with the slower students, either individually or in small groups, it is hoped that the slow student will find it easier to stay with the classroom group. He or she will find a certain amount of security in the knowledge that there is someone available for extra help when it is needed.

Program Procedure: The program of instruction is initiated by the classroom teacher who had identified a student in need of remedial help. The student needing extra help is termed a short term learning problem. However, when there is a definite case of a slow learner which seems to follow throughout all subjects a scheduled tutorial program is developed to meet the need of this student. In all cases, (short term learning problem or the slow learner) a complete diagnostic folder is kept using quantitative and qualitative criteria in order that each student's progress can be measured according to known factors.

The tutor-teachers are hired from the present substitute teachers list. The majority of these people are experienced, certified teachers

qualified to teach in the elementary school, and are hired with the knowledge that they are strong in certain areas.

The number of times a student meets with the tutor-teacher depends on progress shown. This progress is determined by the classroom teacher through the normal class testing program and by the oral response by the student to the questions discussed in class. When the tutor and the teacher both agree that the student is once again able to continue the ordinary class participation, the tutoring service terminates, until such time as additional help is needed. The student's participation in the tutorial program is carefully noted as to problem, diagnostic testing used, remedial treatment, and final outcome; this information to become a part of the individual folder retained by the Guidance Department.

The materials used in the tutorial project are the same as are presently being used in the regular school curriculum. Additional material (books, workbooks, etc.) is purchased for the tutor-teacher as necessary.

Seven tutor-teachers are hired to develop a free-floating program for the slow learning child. These teachers are free to work with all children grade 1 through grade 6 who need additional help. The innovation here is attributed to the fact that the tutors are assigned to a school but not to a classroom. The classroom teacher knows when the tutors are available and where their station is so that students can be readily sent without hinderance or delay.

Budget: $11,500; mathematics allocation - $3,600

24. WAPPINGERS FALLS (Wappingers 1)

Summer Curriculum Workshop, Grades 7, 8, and 9;
400 Disadvantaged Children

Nature of Project: A summer workshop for nonacademic (NA) and applied curriculum (AC) teachers is needed because not enought time is available during the regular school year for individual department or interdepartment curriculum work of this nature. Preceding the workshop is an inservice course in the education and psychology of the slow learner, to help the faculty concerned to learn how better to identify, develop curriculum materials for, and work with, the students in our NA and AC tracks; and with the educationally disadvantaged currently meeting minimum requirements in our Regular (Regents-College Entrance) courses. Both the inservice instruction and the summer workshop are open to private school teachers in the district.

Program Procedure: In a junior-senior high school total enrollment of 3,300, there are approximately 400 students who are educationally disadvantaged. Currently, 251 students are scheduled in the two lower track English programs, NA and AC. The remainder of the 400 have proved capable of minimal performance in the regular track.

No student may be registered in the lower track, nonacademic, unless his nonverbal I.Q. is below 90.

Students in the second track for educationally disadvantaged, AC, typically have average intelligence but have experienced excessive difficulty in one or more subject matter areas, and are 2 or more years below grade level in reading ability.

The summer workshop has representation from each of the following areas: English, social studies, science, mathematics, fine arts, home

economics, music, industrial arts, library, and audiovisual education. Faculty attending are employed for 6 weeks. One member of the staff serves as director, assisted by 1 member from each subject matter department as coordinator. The workshop meets each week day for 6 hours. Time is scheduled for individual department work in curriculum and methodology, interdepartmental coordination, and other activities.

The summer program also provides for consultant service in the total program, as well as in the individual subject areas.

Mathematics Workshop Outline

1. Selection of a textbook for the slow learner, preferably a 7-9 series so as to better integrate subject matter

   The textbooks selected are a 7-9 series specifically tailored to the needs of the slow learner. The series attempts to coordinate proven teaching techniques and the latest developments in learning theory with the precise concepts of modern mathematics. The series provides for the necessary mastery of basic number skills. The students are encouraged to seek out and discover ideas for themselves, to look for patterns and relationships and to develop their own generalizations. Combining this with the achievement of fundamental mathematics concepts provides the student with powerful tools for extending his knowledge.

2. For each grade level achievement tests and other evaluation materials are developed, tailored to the selected textbook series

   Achievement tests were developed using the experimental

edition of the Arithmetic Test for N.Y.S. schools as a basic format, then tailored to both our selected textbook series and the slow learner.

The test involves three major areas: computation, word problems, and concepts, relying slightly more heavily in the area of concepts than the N.Y.S. experimental edition.

The test has been segmented into three 30-minute segments, each segment testing each of the three major areas. Each test has been so constructed as to logically progress in difficulty from the easiest test to the most difficult and has been so designed as to eliminate, as much as possible, student fatigue and guessing.

The test is given twice a year, in September and June. After its second administration an item analysis is performed, dichotomized at the median, closely observed and compared for any differences in achievement and a correlation calculated to determine if the change has been significant.

The above will be an invaluable tool in standardizing and evaluating the programs effectiveness. Student and group results are recorded and kept for teacher reference to help indicate further growth and past experiences.

3. A teacher rated student attitude indicator is developed

The student attitude indicator is an objective teacher rating form. Its purpose is to help indicate if any change in attitude has taken place in any of the stated areas. The philosophy underlying its use is that a change in attitude is likely to occur before a change in achievement. Any indicated change is important in evaluating the student's potential success and the program's effectiveness.

4. For each unit, a concise unit outline and applicable supplementary material are developed

The unit outlines are not intended to be used as a substitute for the textbook, but merely as a guide to unit familiarization.

Budget: $46,600; mathematics allocation - $5,000

25. WEST ISLIP (Islip 9)

Elementary Summer Mathematics Clinic; 300 Disadvantaged Students

Nature of Project: A summer clinic is conducted to increase the child's proficiency in reading and mathematics. The program is designed to improve skills of educationally disadvantaged children in their specific areas of weakness. Diagnosis of disabilities is followed by appropriate instruction in the area of deficiency.

Program Procedure: This project is designed to raise the educational level of children in grades 3 through 6. The grade level is the June grade and not the promotional grade. The project is held for 6 weeks during the summer. Sessions are from 9:00 a.m. to 12:00 noon.

Instruction, with no more than 15 children in attendance at any session, is the prevailing policy.

Identification of children participating fall under the following criteria:

a. The child is deficient in academic areas

b. The child is recommended by the classroom teacher, principal, and/or the school psychologist

c. It is socially and culturally beneficial to the child to partake of the program.

Each parent of a prospective candidate is notified and a parent, a school administrator, and other pertinent school personnel discuss the program and its use for the concerned child. A record of this conference is kept and is instituted prior to the conception of the program.

A concentrated effort is made to understand the algorism and the background necessary to compute accurately.

The children involved receive individualized instruction to correct misconceptions and misunderstandings in basic mathematics.

Where necessary, an effort is extended to increase the rote computational ability of the child.

Time Schedules	Section Math
9:00 - 9:55	Grades 3,4,5,6
10:00 - 10:55	Grades 3,4,5,6
11:00 - 12:00	Grades 3,4,5,6

Budget: $101,400; mathematics allocation - $16,000